

REMARKS

In an Office Action dated July 15, 2004, claims 1-16, 25-32, and 41-48 of the pending application were rejected, and claims 17-24, 33-40, and 49-56 were objected to. New claims 109 and 110 have been added. Support for new claims 109 and 110 can be found on page 17 of the specification.

Reconsideration of this application and allowance of the claims is respectfully requested in view of the foregoing amendment and the following remarks.

The specification was objected to because claims 1-27 appear on pages 30-37 of the specification while another set of claims 1-108 appear on a set of pages numbered 1-27 at the end of the specification. The Examiner's assumption that claims 1-108 were intended to be prosecuted is correct. Accordingly, applicants cancel pages 30-37 of the specification to delete the extraneous set of claims. Applicants submit that the cancellation of pages 30-37 of the specification renders the objection to the specification moot and withdrawal of the rejection is respectfully requested.

Claims 1-4 were rejected under 35 U.S.C. § 102(b) as being anticipated by Moshier et al (US Patent No. 3,356,527). According to the Examiner Moshier et al explicitly discloses the process of claim 1. In particular the Examiner is referring to the disclosure in Moshier et al wherein hydrogen is run through the system, which the Examiner asserts would remove oxygen.

Applicants submit that Moshier et al do not include the important step of separating and purifying the organometallic from the recovered content (from the recovering step). Therefore, Moshier et al does not anticipate the present invention as an essential element, the purification of the organometallic compound from the recovered materials, is not present in the disclosure of

Moshier et al. In addition, Applicants submit that Moshier et al discloses the use of a reaction gas other than oxygen. In Moshier et al the entire system does not contain oxygen whereas in the present invention oxygen is removed from the exhaust gas only, as in claim 2. Moshier et al apparently discloses, a process for thin film formation, wherein oxygen is not required in the plating chamber. However, in the present invention oxygen may be required as a reaction gas in the plating chamber for certain types of thin film formations. Thus, for this additional reason Moshier et al does not anticipate the present invention of claims 1-4.

Applicants therefore respectfully submit that the presently claimed invention of claims 1-4 is not anticipated by Moshier et al (US 3,356,527). Withdrawal of the rejection is respectfully requested.

Claims 5-8 were rejected under 35 U.S.C. § 103(a) as being obvious over Moshier et al in view of Norman et al (US Patent No. 5,144,049). The Examiner asserts that Moshier et al is applied as above, but that the reference fails to disclose distillation or sublimation for purification of the copper compound. The Examiner asserts that Norman et al discloses that distillation and sublimation are suitable techniques for liberating Cu (hfac) from a mixture and thus obtaining a pure copper compound. According to the Examiner it would have been obvious to use distillation to purify the copper compound from the cold trap because doing so would have been expected to be effective for the purification.

Applicants submit that Norman et al discloses the synthesis of a copper organometallic compound. The organometallic compound synthesized by Norman et al is to be used in thin film formation with a CVD process. The reference discloses distilling a solution containing the copper organometallic compound for purification in the synthesis process. Thus, the distillation process

disclosed in Norman et al is part of the synthesis of a copper organometallic compound involving purifying a product from its source materials. However, in the present invention the distillation is applied to the recovered waste material from a discharge gas in a CVD process to purify an organometallic compound. As described above, Moshier et al does not disclose a purification step of recovered materials from an exhaust gas in a CVD process. Thus, neither Moshier et al nor Norman et al, either alone or in combination, teach or suggest the present invention of recovering waste material from the exhaust gas of a CVD process and subsequently purifying the organometallic compound in this recovered material using distillation. Furthermore, one practicing the Norman et al distillation in the CVD process of Moshier et al would not have a reasonable expectation of success in achieving the present invention because the distillation in the present invention is in a different environment than that with Norman et al.

Applicants therefore respectfully submit that the presently claimed invention of claims 5-8 is not obvious over Moshier et al (US 3,356,527) in view of Norman et al (US 5,144,049). Withdrawal of the rejection is respectfully requested.

Claims 9-12 and 25-28 were rejected under 35 U.S.C. § 103(a) as being obvious over Moshier et al in view of Hawley's Condensed Chemical Dictionary. The Examiner applied Moshier as above but asserts that the reference fails to disclose dissolving the recovered copper compound in a solvent or recovering it from a solvent in which it is poorly soluble. According to the Examiner Hawley's discloses that solvent extraction involves three steps and that extraction is an effective purification method. The Examiner asserts that it would have been obvious to have performed these steps to purify the recovered organometallic compound because solvent extraction is a known effective purification technique.

Applicants submit that Hawley's Condensed Chemical Dictionary describes solvent extraction and three types of solvent extractions. However, Hawley's does not teach or suggest a solvent extraction for the purification of organometallic compounds in CVD processes from exhaust gas. For this reason, one of ordinary skill in the art would not try to purify these compounds using Hawley's solvent extraction with a reasonable expectation of success when practicing Moshier et al's CVD process. In addition, Moshier et al, as described above, does not disclose a purification step of recovered materials from an exhaust gas in a CVD process. Therefore, neither Moshier et al nor Hawley's either alone or in combination, teach or suggest the present invention of recovering waste material from the exhaust gas of a CVD process and subsequently purifying the organometallic compound in this recovered material using solvent extraction.

Applicants therefore respectfully submit that the presently claimed invention of claims 9-12 and 25-28 is not obvious over Moshier et al (US 3,356,527) in view of Hawley's Condensed Chemical Dictionary. Withdrawal of the rejection is respectfully requested.

Claims 13, 29, 41 and 45 are rejected under 35 U.S.C. § 103(a) as being obvious over Moshier et al in view of Norman et al and Hawley's Condensed Chemical Dictionary. The Examiner asserts the same reasoning as above but combines both his reasoning in rejecting claims 5-8 with the reasoning in rejecting claims 9-12 and 25-28. Further, claims 14-16, 30-32, 42-44, and 46-48 are rejected as obvious over Moshier et al in view of Norman et al as applied to claims 5-8, and in further view of Hawley's Condensed Chemical Dictionary. According to the Examiner Moshier et al and Norman et al as applied above fail to disclose dissolving the recovered compound in a solvent or recovering it from a solvent in which it is poorly soluble.

The Examiner asserts that Hawley's solvent extraction would have been obvious to perform, as such extraction is known to be an effective purification technique.

Applicants submit that the rejections of these claims are in view of various combinations of the above discussed references. For the reasons above the references do not teach or suggest the presently claimed invention. Therefore, applicants respectfully submit that the presently claimed invention of claims 13, 29, 41 and 45 is not obvious over Moshier et al (US 3,356,527) in view of Norman et al (US 5,144,049) and Hawley's Condensed Chemical Dictionary. Further, applicants therefore also submit that the presently claimed invention of claims 14-16, 30-32, 42-44, and 46-48 is not obvious over Moshier et al. (US 3,356,527) in view of Norman et al (US 5,144,049) as applied to claims 5-8, and in further view of Hawley's Condensed Chemical Dictionary. Withdrawal of the rejections is respectfully requested.

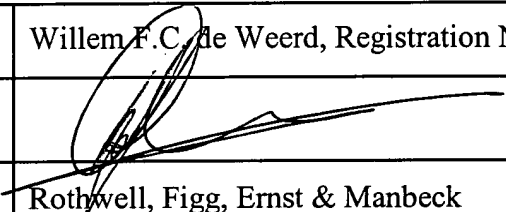
With respect to the above obviousness rejections, the Examiner makes reference to applicants' obligation to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made. In response to the Examiner applicants submit that the invention and all claims of the present application were commonly owned from the time of their invention.

Claims 17-24, 33-40, and 49-56 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. According to the Examiner the claims contain allowable subject matter because there is no teaching or motivation to remove oxygen from a solvent used for solvent extraction of organometallic compounds recovered from an exhaust gas of a CVD process.

Applicants submit that the base claims from which claims 17-24, 33-40, and 49-56 are dependent or neither anticipated or obvious over the references cited and for these reasons applicants respectfully requested withdrawal of the rejections as discussed above. Accordingly, Applicants submit that the objection to claims 17-24, 33-40, and 49-56 is moot and withdrawal of the objections is respectfully requested.

Applicants submits that the present application is now in condition for allowance.

Reconsideration and favorable action are earnestly requested.

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